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The Resources of the Irish Sea Fisheries. By RICHARD VALPY, Esq.

[Read before the Statistical Section of the British Association at Oxford,
24th June, 1847.]

THE present condition of Ireland is certainly a great anomaly. That large island is known to possess a soil of superior fertility; with by no means a scanty supply of valuable metals and minerals; with an amount of water power, available for manufacturing purposes, estimated as equal to the power of a million and a quarter of horses; with all parts of the coast abounding in fish of the finest description; with 8,000,000 of inhabitants (a number so far from redundant, that if doubled it would only be in proportion to the present population of the one county of Armagh); and in legislative union with the most wealthy and industrious nation in the world. Possessed of such resources, how can it be explained that, in this its time of famine and disease, it is so destitute of the power to support its own population, as to require the expenditure by the sister island of 10,000,000*l.* sterling, and that partly in providing three millions of rations a-day for its destitute poor?

Few of the resources of Ireland are perhaps more capable of affording extensive and speedy relief than the sea fisheries, as in such industry no delay occurs in the return for the capital and skill applied, and the yield is almost miraculous.

The coasts of Ireland present a general length of 2,346 statute miles, and, with but little variation, abound in all the various kinds of fish in common use. Cod, ling, haddock, hake, mackerel, herrings, whiting, conger, turbot, brill, bream, soles, plaice, dories and salmon, are the sorts most frequently met with; but several others are by no means uncommon, as gurnet, pollock, skate, glassen, sprats, &c.

We find that the value of the Irish fisheries was known both at home and abroad at early periods. In 1673, Sir W. Temple, in a letter to Lord Essex, says that, "the fishing of Ireland might prove a mine under water as rich as any under ground." And, as far back as the 9th and 10th centuries, the Danes are said to have established a fishery on the banks off the western coasts, which enabled them to carry on a lucrative trade with the south of Europe, bringing back wine and other southern productions, in exchange for the produce of the fishery. In Queen Mary's reign, Philip II. of Spain paid 1,000*l.* annually in consideration of his subjects being allowed to fish on the north-west of Ireland. This permission was granted in 1553, for the term of 21 years, and it appears that the money was brought into the Irish exchequer, a reproach, says Wakefield, to the natives at that time for their indolence and inactivity. In 1650 Sweden was permitted, as a favour, to employ a hundred vessels in the Irish fishery. And the Dutch, in the reign of Charles I., were admitted to the fisheries, on the payment of 30,000*l.*

At the present time, by far the largest proportion of the fish caught, is taken in the immediate neighbourhood of the shores; the general character of the boats and gear not allowing the fishermen, even if they had the inclination, to take advantage of the large quantities of fish

which are to be found on the numerous banks lying off all parts of the coast, at various distances of a few miles. These banks, with but few exceptions, vary from one to eight miles in length and breadth.

On the western coast there is a bank of very considerable extent, which stretches, in an oblique direction, nearly from the coast of Galway to Newfoundland, at the depth of twenty to thirty fathoms, and of various breadths from fifty to a hundred miles and more. It is well known to be frequented by myriads of excellent fish of various kinds, and was considered by Mr. Dalton *, to be capable of easily supplying cargoes for two thousand vessels in a season.

The Nymph Bank, on the southern coast, although less extensive than the great western bank, is a large and very valuable fishing-ground, extending about ten or fifteen leagues, with a uniform depth of about forty fathoms, and of a sufficient size to afford employment to many hundred vessels. Competent authorities have given it as their opinion, that this bank, (which is only 150 leagues from Gravesend,) from its proximity and the excellency of its produce, might afford to the principal English markets, a supply of cod and other white fish very superior in quality to what is now received there. Fast sailing well-boats, favoured by the westerly winds which so much prevail on the coast of Ireland, might in fine weather carry the fish to London in four or five days, whereas the well-boats from the North Sea, and the north-east coast of Scotland, sometimes reach Gravesend with difficulty in as many weeks, with the fish so much bruised and injured by the agitation of the sea, as to be hardly fit for sale.

The cod caught on the southern coast of Ireland are said to be preferable to those caught in the American seas; and Dr. Smith, who wrote a natural history of Waterford, considered that part of the coast to be particularly adapted for the rendezvous and breeding of fish.

A company was formed in Waterford, in 1802, for prosecuting the Nymph Bank fishery with well-boats. The Irish Government encouraged the undertaking, and agreed to give a premium of 10 per cent. on the capital subscribed, and to pay a bounty of 30s. per ton on the vessels employed. But, owing to quarrels amongst the directors and their bad management, the project failed. On the dissolution of the company, one of their vessels, with a skilful skipper, was employed by one of the shareholders, and fished the bank, especially off the Saltees on the Wexford coast, with great success. A cargo was taken to Gravesend in five days and eleven hours, notwithstanding heavy gales off the Land's End, and 35 score of live cod and 66 score of split cod, were sold at Billingsgate. The live cod sold at good prices, and were much esteemed on account of their quality and the good condition in which they appeared, having been all taken within three weeks of the time of their being brought to market; whereas those from the northern fishing-grounds are very frequently six weeks and sometimes two months in the wells.

The master of the boat computed that from the 18th of December, when he returned to Waterford, until the end of April or the middle of May, he could, with the assistance of another vessel, have carried up a cargo of 50 score of live fish to London every month, which at only 5l.

* Author of "A Survey of Clare."

a score (cod fetching at Billingsgate from 8*l.* to 10*l.* a score about Christmas), would have produced 1,000*l.*

Persons of great experience in the cod fisheries have stated that the fishery for cod might be carried on with great advantage on the coast of Ireland from the month of October until the middle or end of April; after which time the vessels could be employed in the northern seas, where cod is taken in great perfection during the summer.

In the present day, we are not without evidence of the productiveness of the deep-sea fishery on the southern coasts. One of the partners in a small fishery establishment at Dunmore, near Waterford, says in a letter* dated March, 1844: "The fishing-ground off this coast is excellent, and since its value has been fully ascertained, the number of boats engaged in the fishery has greatly increased. The pier at Dunmore affords such superior accommodation, that it bids fair to become an important and valuable fishing station.

"At one period this year (1844) we reckoned upwards of twenty cutters of 40 to 50 tons each, (some from Dublin, and some from Dartmouth,) besides the local boats; and it is a remarkable, and at the same time a very gratifying circumstance, that since having so many assistants in gathering this rich harvest, the quantity of fish caught by our boats does not diminish, but on the contrary. In proof of this I may state that when we commenced, about a year and nine months ago, we considered 40*s.* worth a good day's fishing; but now, unless it produces 3*l.* or upwards, we look upon it as only so-so. Another pleasing feature is that the demand keeps pace with the supply. England takes all the surplus prime fish, and the other descriptions are now becoming a regular portion of the diet of the inhabitants, and is found not only wholesome but likewise economical.

"The cod of 12 lbs. to 30 lbs. is $\frac{1}{2}$ *d.* to 1*d.* per lb., and haddock of 8 lbs. to 14 lbs. 2*d.* per lb.; both being as good and cheap food as need be desired.

"The great value of the fishery on this coast has surprised many persons, and as figures in statistics are potent arguments, I may here mention the produce of our boats for the half-year ending the 31st March, 1844.

Gross Earnings.	After deducting Expenses of Carriage, Commission, &c.					
	Men's Share.			Owner's Share.		
	£	s.	d.	£	s.	d.
Boat No. 1.	217	9	6	111	14	6
„ 2.	180	4	0	91	14	2

"Now if the ensuing six months be as profitable, and we have no reason to suppose it will be otherwise, the crew of No. 1 will earn in the year 223*l.* 9*s.*, and of No. 2, 183*l.* 8*s.* 4*d.*, which divided in the accustomed proportions will stand thus:—

* See Appendix to the Report on the Fisheries,—1843.

	No. 1.			No. 2.		
	£	s.	d.	£	s.	d.
Skipper, $1\frac{1}{4}$ share	69	16	6	57	6	4
2nd hand, $1\frac{1}{4}$ „	69	16	6	57	6	4
3rd „ 1 „	55	17	4	47	17	0
Boy, $\frac{1}{2}$ „	27	18	8	22	18	8
	223	9	0	183	8	4
And the owners will receive.....	167	11	8	137	11	4
Making the total net earnings in the year	391	0	8	320	19	8

“If we deduct 50*l.* from the earnings of each boat for wear and tear, and supposing the boats to cost 500*l.* each, which is considerably more than we paid for them (one of 32 tons, and the other 36,) No. 1 will pay $23\frac{1}{2}$ per cent., and No. 2, $17\frac{1}{2}$ per cent. in the year, the two averaging $20\frac{1}{2}$ per cent. And further, if we only suppose there were twenty such boats belonging to Dunmore, and I see no reason why there should not be twice or thrice that number, and taking them to be as successful as those mentioned above, there would then be a sum of upwards of 4,000*l.* to be divided among the crews of these twenty boats, say sixty men and twenty boys; not to speak of the owners’ shares, or the money distributed among the carriers, helpers, basket makers, &c., besides the annual outlay for sails, cordage, twine, boat-builders, &c.”

About a twelvemonth after the date at which the above extracts were written, the Fishery Commissioners, in their annual report, speak thus of the deep-sea fleet at Dunmore:—“The boats of five companies are now steadily engaged in fishing in the same locality; there are twelve very fine cutters, averaging a weekly produce through the year of nearly 100*l.*, being at the rate of 8*l.* 4*s.* per week, and 426*l.* a year for each boat. The whole of the fish is either shipped to the English markets, or sold at Dunmore and Waterford as it is taken from the boats; and it is rather a singular fact that the demand is now more steady and more equal than when the undertaking was commenced, with only three vessels”—about two years previously.

“The great majority of the crews are now natives, and having once acquired the necessary skill, from intercourse with the more experienced hands who had been brought over from England, they are infinitely preferred, as more sober and orderly in their habits than their more skilful shipmates. Dealers and exporters in numbers have sprung up in Waterford, and the companies are no longer obliged to trouble themselves about the disposal of the fish. On the average of three years, the returns to one company have exceeded 15 per cent. on the capital invested.”

No statistics exist to show the quantities of white or other fish now taken on the Irish coasts, but some idea of the produce that might be obtained may be formed by the aid of the following table, which exhibits the quantities of the various kinds of white fish dried in Ireland under the bounty system, from 1819 to 1829.

Years.	Cod.	Ling.	Hake.	Haddock.	Glassen.	Conger.	Total.
	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
1819.....	5	1	37	....	768	....	811
1820.....	1,650	4,510	6,312	25	4,082	1,117	17,696
1821.....	3,110	6,406	9,393	93	1,628	2,059	22,689
1822.....	3,810	8,572	8,357	126	5,583	1,866	28,314
1823.....	4,564	8,287	14,423	358	1,434	2,356	31,422
1824.....	3,682	5,231	10,599	325	1,347	3,700	24,884
1825.....	3,638	7,462	15,311	282	2,456	5,682	34,831
1826.....	4,701	9,461	10,502	502	4,225	4,427	33,818
1827.....	4,148	5,322	24,321	450	2,736	3,827	40,804
1828.....	5,338	6,648	16,328	171	8,097	3,166	39,748
1829.....	8,960	6,781	32,159	573	8,046	3,858	60,377

These results will appear by no means insignificant, even if placed in comparison with the following statement of the quantities of fish cured in Great Britain in each of the last five years when bounties were paid.

Years.	Cod, Ling, or Hake, Cured.		
	Dried.		Cured in Pickle.
	cwts.	cwts.	
1826	69,136	3,634	5,621
1827	95,161	9,273	9,025
1828	82,515	6,726	6,142
1829	81,321	5,786	6,819
1830	101,914	5,652	8,836

There is doubtless a wide difference in the produce of the two countries in the same years, but we must not forget the still greater difference which exists in the means of the respective countries for prosecuting that particular industry. The natural resources may vary little, but Scotland, the principal seat of the British fishery, has greatly the advantage of Ireland, in more abundant capital, better and more general harbour accommodation for boats, a larger number of curing-establishments, and more experience and skill on the part of the fishermen.

The Herring-fishery of Ireland appears to have suffered a more extensive decline than any other branch of the fisheries. It is there, no doubt, as in other countries, the most variable kind of fishery; but we think the falling off of the produce may be more correctly ascribed to the confinement of the fishery to the immediate neighbourhood of the shores than to the uncertainty of the visits of the herring. For although the shoals may not regularly frequent the same localities year after year, the herrings are still to be met with in the deep seas, and in the same abundance.

We find that the herring-fishery was very productive in the early and middle parts of the last century, but it rapidly decreased at the close of that period. In 1784, 35,414 barrels, valued at 35,414*l.*, were exported; whereas six years afterwards, in 1790, the exports

were only 1,391 barrels. The trade did not rally again for some years, until towards the end of the bounty system, the returns for which time, however, must not be considered without bearing in mind the frauds then practised, of introducing as Irish produce fish of foreign origin.

The quantities of herrings cured in Ireland for the bounties, in each year from 1819 to 1829, were as follow:—

Years.	Herrings.	
	Gutted with Knives.	Otherwise Gutted.
	Barrels.	Barrels.
1819	217	976
1820	7,018	735
1821	9,464	262
1822	12,112	146
1823	27,551	306
1824	41,570	63
1825	36,957	26,186
1826	26,186	512
1827	15,737	47
1828	13,513	....
1829	16,855	....

The herring-fishery is now chiefly carried on at Galway, Killebegs on the Donegal coast, Mayo, the estuary of the Shannon, the coast between Dingle Bay and Kenmure, Bantry Bay, Waterford, and from Mizzen Head to Cahere Point on the Wicklow coast. Herrings may be taken in the winter and summer, but the fishery is generally carried on in the former season.

A small portion only of the persons employed in the Irish fisheries follow fishing as their sole occupation, and therefore the agricultural operations of summer may be a prominent cause for winter being the principal period for the fishery. It is nevertheless a misfortune that such is the case, as the summer fishery is highly recommended, both on account of the supply being more sure and steady, and the quality of the fish superior. Herrings are said to sell higher for the Baltic market in July than at any other time of year, as they have then no appearance of roe, and are very rich. In the beginning of summer herrings sell for 10s. the hundred, and afterwards the price falls to 3s. or 2s. 6d.

English boats are engaged in the summer fishery in the Irish Channel. In the evidence taken in 1836, it is stated that about one hundred boats from Penzance go to Ardglass on the north-east coast, every season, and remain about three months, arriving in June and departing at the end of August for the pilchard-fishery. These boats have received 100% a month for herrings; but the men consider the season a good one if they have more than 20% to carry home.

Of the herrings thus taken, large quantities are purchased and taken by Irish boats, from Skerries, near Dublin, to Liverpool. The herrings are sold to the Skerries men at 4s. a hundred, and are resold in Liverpool at 6s. to 12s. a hundred. In 1836 a fish factor in Liverpool stated that his sales of herrings from the 21st of June to the 1st

of October, 1835, amounted to 12,237*l.*, and that the fish were generally of the finest quality. From May to July, before lamb becomes plentiful, herrings are considered the greatest luxury throughout the manufacturing districts of Lancashire. The demand for them in the towns of Liverpool, Manchester, Bolton, &c., is unbounded, and at that period they are worth 10*s.* a hundred, if brought in good condition. There was another fish factor in Liverpool doing the same amount of business in 1836.

The testimony to the superior qualities of the Irish herring is general and striking. Mr. Wetherall, of the custom-house, Dublin, in 1795, says in reply to queries from the Board of Trade:—"I understand that Irish cured herrings are esteemed to answer the home consumption better than the foreign, being larger and of a more delicate quality, and being considered as much better food for the manufacturer and labourer."

The following extracts from the evidence before the Commissioners in 1836, are to the same purport:

COUNTY DOWN.	The herrings are of a large fine species.
COUNTY DONEGAL.	The Irish herrings are much better in quality, and bring higher prices in the Scotch markets than herrings caught in Scotland.
"	Herrings large and of very fine quality.
"	The herrings taken at Killybegs are of a much better quality than those taken in Scotland.
"	The quality of the herrings on this coast is remarkably fine.
COUNTY GALWAY.	The harvest herrings are superior to those of winter, and equal to the best loch herrings of Scotland.
"	The herrings are of fine flavour and quality.

We give another extract from the same evidence, to illustrate the violent fluctuations experienced, when the fishing is dependent on the close approach of the herrings to particular parts of the coast:

"For some years, between 1783 and 1790, the herring-fishery at Rutland, county Donegal, was so extensive that 500 vessels were generally loaded every year. The herrings were large; 500 would fill a barrel, and they were of very fine quality. At that time 900 of the Killybegs herrings would be required to fill a barrel. The herrings of Rutland were, for the last four or five years of the fishery, taken in less quantity, and then entirely left the place." This district is thus described in 1836:—"The fishermen have not any fish to sell, none, or very few being taken; and it may be justly said of poor people here, that they are starving in the midst of plenty, seldom eating anything but potatoes and salt." A harbour and various buildings were constructed on Rutland Island, but are now covered with sand. In January, 1836, the herrings re-appeared in great abundance at Rutland. Had the fishermen at Rutland been able to follow the herrings to sea, in all probability their success would have been as great as when the shoals frequented the coast. Wakefield also mentions the failure of the establishment on Rutland Island. "A gentleman," he says, "laid out 38,000*l.*, in addition to a Parliamentary grant of 20,000*l.* in the establishment of a fishing village, but although the undertaking proved so successful at first, as sometimes to give employment to 300 vessels and 1,200 boats, and that 135,000*l.* was received in cash in the course of two months, the herrings disappeared, and the whole scheme entirely failed."

A deep-sea fishery for herrings is not only strongly recommended by the successful example of foreign countries, but, for several reasons, it is more advantageous than the uncertain fishery which is dependent on the shoals frequenting the coasts.

Fraser advocates a deep-sea fishery, because the earliest herrings are there caught; and besides their being earlier, the herrings are fuller in flesh, in more perfection, and cure much better. "Such a fishery," he further adds, "might be carried on with perfect certainty every year, whereas the migratory shoals of herrings do not every season return to the same shores or bays, where they are usually expected, and sometimes for years together are found not to resort to any part of the shore of even an extensive line of coast."

The Dutch, in their more fortunate days, when at liberty to carry on the herring-fishery unrestrained, did not seek for these fish on their own coast, but proceeded to the North Sea, and the neighbourhood of the Shetland Islands; remaining out for many weeks, and pursuing the herrings in their course as they proceeded towards the south. Had they waited on their own shores until the fish entered their nets, they never would have carried this branch of industry to such an extent as to render it one of the chief sources of the opulence of their country.

The Swedish fishermen also sail sometimes to the distance of forty miles to pursue their occupation with more advantage, and remain out several days and nights even in the severest weather.

Besides the large supplies of excellent white fish and herrings of which the Irish seas can boast, many kinds of flat fish, of an equally fine and large description, are to be found there also. And both lobsters and crabs are by no means strangers to several parts of the coast. To persons accustomed to the small supply and high price of turbot in the London market, the following portions of evidence on that branch of the Irish fisheries may excite some degree of surprise.

COUNTY DOWN.....	Turbot are so abundant in Dundrum Bay, that they are speared close to the dry strand.
„ GALWAY.	Turbot of from 14 to 20 lbs. are sold at from 8 <i>d.</i> to 1 <i>s.</i> each.
„ CLARE	Turbot and other flat fish are abundant.
„ KERRY....	There is a most excellent turbot bank near the markets. 25 to 28 fine large turbot were caught by the Coast-Guard officer, with a small spillard, in one tide, some of them weighing from 20 to 30 lbs.

The Irish soles have favourable testimony bestowed on them also. "On the Kerry coast," it is said, "black soles, the finest in the world, are sold to the jolters at from 1½*d.* to 4*d.* the pair."

A few extracts from the evidence will suffice to show how much profitable employment might be obtained by prosecuting the lobster-fisheries.

COUNTY ANTRIM.	Both lobsters and crabs exist in sufficient abundance to create a very lucrative fishery.
„ DONEGAL.	C. killed from 20 to 30 dozen lobsters a-day off Culdaff, and the fishery may be much extended.
„ WEXFORD.	The lobster-fishery of Kilmore is very important, and may be rendered a valuable source of wealth and employment by proper regulation.

There is still another branch of the Irish fisheries deserving of notice, and to which the English markets are indebted for a considerable supply of very fine salmon.

Previous to the passing of the present Fishery Laws the salmon-fisheries of Ireland were in a very neglected state, and the Commissioners, in their Report on those fisheries in 1844, remark that they never did up to that time, nor do they even now, as a whole, yield more than a small proportionate part of that value of which they are capable under a proper system. To discover and establish that system, especially as regards the important and much vexed question of the close season, a question of dispute, doubt, and difficulty, for more than two hundred years, has been a source of considerable labour and investigation to the Commissioners.

In the Report of 1844-1845, no fewer than fifty-six rivers are enumerated as localities where salmon are taken. We subjoin the names of the principal rivers, with the probable present gross produce of fish.

Rivers.	Fishing Districts.	Produce.		
			Tons.	Cwts.
Foyle	Carne	about 80,000 salmon, or....	220	0
Bann	Ballycastle.....	average of 6 years	51	1
Bush	Do.	" 4 "	10	7
Ballycroy	Belmullet	" 3 "	26	0
Ballinahinch	Clifdon	about	23	0
Renvyle Fishery.....	Do.	"	10	0
Bundrowes	Sligo	"	10	0
Blackwater.....	Youghall	from £3,500 to £4,000.		
Barrow.....	Waterford.....	about £17,000 to £18,000.		
Nore.....				
Suir				

The total produce of salmon in Ireland is not exactly known, we believe, but as far as we can gather from evidence taken throughout the country in 1844, it appears then to have been about 500 tons annually, which at an average price of 8*d.* per lb., would represent a value of 37,333*l.* Large quantities are exported from places having steam communication with England, and judging from the particulars we have been able to gather, the export may be considered to exceed half the produce.

Messrs. Keays exported the following quantities of salmon from Cork in 1842, 1843, and 1844.

	Number of Boxes and Kits.	Number of Salmon and Peal.	Gross Weight.
1842.—Period 10 Months.			
Raw Salmon—Iced	Boxes..... 3,811	56,937	Tons. 170
Manufactured	Kits..... 3,529	15,744	46
Total .....	...	72,681	216

	Number of Boxes and Kits.	Number of Salmon and Peal.	Gross Weight.
1843.—Period 6 Months.			
Raw Salmon—Iced	Boxes 2,766	38,980	Tons. 124
Manufactured.....	Kits 2,873	14,914	39
Total .....	....	53,894	163
1844.—Period 6 Months.			
Raw Salmon—Iced	Boxes..... 2,330	33,815	104
Manufactured.....	Kits 2,449	11,665	31
Total .....	....	45,480	135

Other parties in Cork are reported as having exported as much as the above.

Mr. Keays states that the export of salmon from Cork has been increasing, but the fishery has not been carried on as extensively as it ought. The exports of salmon from Waterford in the seven months from February to August 1844, amounted to 20,852 fish, of 67 tons 14 cwt., in weight; averaging from 6 lbs. to 11½ lbs. each.

For the sake of comparison we have extracted from Mr. McCulloch's "Account of the British Empire," the following statement of the quantities and average value of salmon packed in ice, imported into London from Scotland, in each year from 1837 to 1841.

Years.	Quantities.	Average Prices.	Total Value.
	Tons.	d. per lb.	£
1837	1,615	10	150,750
1838	1,070	10½ "	104,160
1839	817	11 "	83,880
1840	758	11 "	77,850
1841	1,425	8¾ "	116,400

The practice of icing fish for export is now very common, but it may not be generally known that the Chinese appear to have been the first to adopt that method of preserving fish in a marketable state. Wakefield gives the following extract on the subject from Duhamel's "Traité des Pêches," published in 1772: "On sçait qu'à la Chine, on forme sur des bateaux des espèces de glaciers, au moyen desquelles on transporte à Canton des poisson frais et bon à manger, qu'on a pris dans des provinces fort éloignées."

The condition of the salmon fisheries of Ireland has occupied much of the attention of the Fishery Commissioners. In 1844 they instituted an inquiry into, and took evidence as to, the general state of the fisheries throughout the country, and considerable pains were taken to ascertain the proper period for the close season, on which the future prosperity of the salmon fishery almost entirely depends. In proof of the benefits that will result from the adoption of, and steady perseverance

in a judicious system of protection, it is stated that the produce of the Foyle has been raised from an average of 43 tons previous to 1823, to a steady annual produce of nearly 200 tons, and very nearly to 300 tons in the year 1842. And the produce of the small river Newport, County Mayo, has been increased from half a ton or a ton in a season, to 8 tons of salmon and 3 tons of trout for the season ending the third year, after strictly enforcing the protection provided for in the Act of 1842.

In consequence of the comprehensive inquiries instituted by the Fishery Commissioners in 1844 and 1845, and the suggestions in their Report of 1845, it was enacted in the Session of 1846, that the close time for salmon in the sea and tideways should be from the 1st September to the 31st January inclusive; and in rivers or lakes above tideways from the 1st October to the last day of February inclusive; and further that in September salmon should be only taken by rod and line in rivers or lakes above tideways.

Having now detailed the different branches of the Irish fisheries, and considered their respective capabilities, we proceed to show the amount of employment afforded by them. The earliest record that we have been able to meet with of the number of persons employed in the fisheries, is a return about the year 1812, of the Irish Sea Fencibles, exhibiting a total of 9,911 men, which Wakefield says included all the fishermen of Ireland. From 1812 there is no further return until 1821, when the Fishery Board reported the number of fishermen to be 36,159. The difference in the numbers for these two periods is very great, and although the data will not warrant any strict comparison, we may still assume that more persons were engaged in the fisheries in 1821 than at any previous period. The following table contains the number of boats and men employed in the fisheries from 1821 to the present time, so far as can be ascertained.

Years.	Boats.			Fishermen.
	1st Class.		2nd Class. Without fixed Masts and Rigging.	
	With fixed Masts and Rigging.	Per centage Proportions.		
1821	2,766	36·	4,889	36,159
1822	3,108	33·	6,196	44,892
1823	3,249	31·	7,150	49,448
1824	3,385	31·	7,497	52,482
1825	3,197	30·	7,626	57,809
1826	2,878	24·	9,147	58,044
1827	2,828	23·	9,298	59,321
1828	3,437	28·	9,174	63,421
1829	3,597	28·	9,522	64,771
1836	2,897	27·	7,864	54,119
1843	1,887	12·	14,048	73,979
1844	2,237	12·	15,718	84,708
1845	2,371	12·	17,512	93,073
1846	2,423	17·	11,793	98,538

Hence the number of men increased in the nine years from 1821 to 1829, to the extent of 28,612, or 79 per cent.; the increase from

year to year was greatest from 1821 to 1822, when it amounted to 24 per cent., but that was the first year of the operations of the Fishery Board, and in the subsequent years of that Board's duration, the increase did not exceed 10 per cent. What the actual decrease was on the cessation of the bounties in the beginning of 1830, we are unable to show, but the number of men in 1836 being 9,652, or 18 per cent. less than in 1829, proves that the withdrawal of that aid considerably diminished the number of persons employed. The abolition of the bounty system, however, did not long interfere with the progress of the fisheries, as in 1843, or seven years after 1836, we find 19,860 more men, a difference of 37 per cent.; and if we compare 1843 with 1829, we shall see that there was an increase of 9,208 persons, or 11 per cent., within fourteen years after the bounties ceased. A marked improvement is perceptible in the years 1844 and 1845, of 14 and 10 per cent. respectively, and it cannot but be satisfactory to observe that employment is given to 56,914 additional men in 1845 than in 1821. We have purposely avoided comparing the numbers for 1846 with other years, as we regret to observe that Mr. Barry, of the Department of Fisheries, Dublin, has informed us that "there is every reason to be quite certain that there has been a most deplorable diminution in the number both of vessels and men employed in 1846, an unprecedented mortality consequent on the deepest distress, and an unusually large emigration must have produced a great decrease in their numbers." It is gratifying to remark that the habits and conduct of the fishermen is materially altered for the better, and notwithstanding the increasing introduction of improved modes of fishing, of which great jealousy has hitherto prevailed, and still does to some extent, the twenty-eight registering officers report the general behaviour in their districts as peaceable and orderly, with but five trifling exceptions in 1844, and the same number in 1845. This is a pleasing contrast to the character of the fishermen a few years ago, which is thus alluded to in the official suggestions to the Commissioners for inquiring into the state of the fisheries, in 1836:—"In many parts of the coasts disputes have arisen between the line fishermen and those using trawling or other nets. At the Claddagh (Galway town) an association has long existed among the fishermen, who have a self-appointed chief, and are subject to rules and regulations founded on superstitious and indolent habits, and opposed to many useful and industrious operations. So powerful is this body, that it has been very frequently necessary to check their proceedings by Government armed-vessels."

A glance at the number of boats of each class in the preceding table, will be sufficient to prove how large a proportion of the Irish fishing is necessarily confined to within a short distance from the shores, and consequently, the extraordinary resources of the neighbouring deep seas are barely taxed beyond what is just sufficient to prove their rare abundance. It will be seen that from 1821 to 1829, when bounties were paid, the per centage proportions of first class boats varied from 100 to 200 per cent. above what they were in 1843, 1844, 1845. This arose, no doubt, from the Government money making it just worth the while of capitalists to embark in the fisheries, and

not from any healthy stimulus imparted generally to the industry itself. The comparative higher proportions in 1836 and 1846 do not appear to have been occasioned by an increase in the number of first-class boats, but rather from a reduction in the second class boats, arising perhaps from their unserviceable state, and the want of gear and other necessaries. Another circumstance may help to account for the great variation in the proportion of the first to the second class boats, and that is something different perhaps in the modes of classification at different periods.

It seems probable, from the information we have been able to collect, that there are as many, if not more, actual boatmen engaged in the Irish, as in the British fisheries. Such a conclusion appears to be warranted by a comparison of the following figures, which shew the number of boats and persons employed in the Irish fisheries, and in the British cod and herring fisheries, from 1842 to 1845.

Years.	Irish Fisheries.		British Cod and Herring Fisheries.	
	Boats.	Persons.	Boats.	Persons.
1842 .....	....	....	12,405	90,435
1843	15,935	73,979	14,067	98,124
1844	17,955	84,708	14,266	97,521
1845	19,883	93,073	14,649	99,065

Although this return is confined to the British cod and herring fisheries, it may be regarded as closely representing the total number of persons employed in the whole of the British coast fisheries. The British totals include a large proportion of curers and other work-people connected with the business of curing; the actual crews being rather under two-thirds of the whole number, which was thus composed:—

	Fishermen.	Owners and others.	Total.
In 1842 there were.....	54,282	and 36,153	90,435
„ 1843 „	60,457	„ 37,667	98,124
„ 1844 „	59,859	„ 37,662	97,521
„ 1845 „	60,279	„ 38,786	99,065

No distinction is made in the Irish returns to mark the nature of the employment of the persons engaged in the fisheries, but from the nearly total absence in Ireland of establishments for curing the fish, it is evident that the proportions of boatmen to other persons employed must be much higher in the Irish than it is in the British fisheries. And as the total number of persons engaged in the Irish fisheries considerably exceeds the number of British fishermen, we think there is sufficient evidence to establish the fact that there are many more fishermen in Ireland than in Great Britain. Happy would it be for Ireland if the success of her fishermen was at all equal to that of the British; but instead of there being a large export of the produce of her fisheries, cured fish of British taking is imported into Ireland, to the amount of several thousand pounds annually. The following table is a statement of the official value of fish of

British taking imported into Ireland, and of fish of all sorts exported from Ireland, in each year from 1839 to 1846.

Years.	Imports.	Exports.
	£	£
1839	44,614	653
1840	69,972	600
1841	75,944	53
1842	69,631	280
1843	36,195	2,418
1844	34,677	90
1845	80,728	177
1846	30,701	775

With the evidence of the preceding pages before us, illustrative of the striking capabilities of the Irish fisheries, and the ample means by which they might be worked, the question may naturally arise how it is that so little advantage has hitherto been taken of a provision, at once so bounteous and so easy of attainment. And it may be inquired has the attention of Government been at any time directed to the subject, and means taken to draw capital and enterprise into so important a branch of the national industry. On the last of these queries we may remark that not only have various Government investigations been made as to the condition of the Irish fisheries, but large sums of public money have been lavished on them in the shape of bounties, both before and after the Union. The encouragement afforded by the Irish Parliament is thus alluded to in the Report on the British Fisheries in 1800:—"Your Committee think it probable that the very large bounties given on the herring fishery by the legislature of Ireland, would, in case of that increased intercourse between the countries which may be expected to take place after the Union, give rise to a great variety of difficulties and frauds, unless the systems of the two countries should be assimilated; and as the Irish fishery is, notwithstanding these bounties, in a very declining state, they cannot recommend the adoption of theirs."

We find that from 1801 to 1819, when a Fishery Board was established in Ireland, 92,152*l.* were paid on fishing-boats, cured fish, and fish oil; and that from 1820 to 1830, when that Board was abolished and bounties were discontinued, a further sum of 163,376*l.* was so disposed of; amounting together to a sum of 255,528*l.*, which, with 21,256*l.* (granted on foreign cured fish imported, and paid, within a small amount, in the five years from 1807 to 1811), makes a total of 276,784*l.* for the amount paid in bounties during thirty years, from 1800 to 1830, being 9,200*l.* a-year on the average.

These bounties, which failed to establish the fisheries on a permanent footing, were open to the perpetration of great frauds, as many of the herrings exported as Irish produce, only deserved that character from occupying an Irish instead of a Swedish barrel.

The capital which the bounties had attracted to the fisheries from other employment, speedily returned to its former channels on the

discontinuance of Government payments, and the number of boats and persons employed was of course greatly decreased, but probably little distress was the consequence to the Irish themselves, as fishing for the bounties no doubt opened a wide field to British capital and British fishermen.

Since the period of bounties, a large increase has taken place in the number of second-class boats, and in the persons employed, but the fishery appears to be carried on in a very inefficient and spiritless manner, and the produce is very far from what it ought to be.

The absence of a more numerous class of large boats appears in a great measure to be owing to a corresponding absence of safe and well-placed harbours and piers. But this impediment to the progress of the fisheries will now be almost entirely removed, by the liberal grants made in the last two sessions of Parliament in aid of such works. 50,000*l.* were voted in 1846, to encourage the sea fisheries of Ireland by promoting the construction of piers, harbours and other works. The Commissioners of public works in Ireland state, in their Fifteenth Report, on the subject of this grant, that, since the passing of the Act, they have received 125 memorials praying for the erection of works of that nature. Many of these memorials were for inappropriate purposes, but thirty-five projects, estimated to cost 79,815*l.*, were selected as deserving of immediate assistance, and the Treasury have sanctioned grants accordingly to the amount of 47,477*l.*; the remaining 32,338*l.* being provided by the districts or interested proprietors. The locality of these works appears to be judiciously selected, and all parts of the island will be benefited by them, but principally the western and southern coasts. In 1847 a further sum of 40,000*l.* was granted, which if issued in the same proportions to the total estimates, namely 60 per cent., will cause an additional expenditure of 64,000*l.*, making an aggregate of 145,000*l.* to be devoted to these important objects. So large and useful an outlay cannot fail to be highly beneficial to the interests of the fisheries. Indeed, the small but successful fishing companies at Dunmore, to which we have already referred, are a gratifying proof of the good results that will follow the provision of suitable shelter and accommodation for the fishing-boats.

But there are other causes which also tend to check the development of the Irish fisheries, and to overcome which is quite beyond the unassisted power of even the most industrious and skilful class of fishermen.

In many parts of Ireland the roads between the coast and the neighbouring towns and villages, are few and bad; thus many localities which could command an exuberant supply of fish, equal to any demand, are isolated and unable to find a market, and the fishing is confined to the supply of individual necessities, the fishermen having no inducement to extend their operations.

The people have not been backward to avail themselves of improvements in the means of access, and in many places, so favoured, strings of carts may now be seen conveying fish into the interior, with which little or no intercourse formerly existed.

But, perhaps, the Irish fishermen experience a still greater disadvantage from the general want of the common facilities for curing fish. Without such provision they are unable to follow one of the

most valuable branches of their calling, and the deficiency in this respect has been deemed of sufficient importance to justify the aid of Government who have recently set up six model curing establishments. The experiment, although so limited, has we believe given ample proof of the large quantities of excellent store food that could be prepared from a now perishable produce, if the requisite means were more generally at command.

To excite a progressive prosperity in the Irish fisheries evidently requires then, the opening to the fishing stations of every possible source of demand, and the use of all practicable efforts to make the system of curing an essential part of the business of the fisheries.

Although perfectly aware of the many difficulties that must beset the adoption of efficient measures for these purposes, we thought that the demand might be considerably increased by the introduction of fish, two or three times a week, into the workhouse dietaries, and the art of curing very generally diffused by providing means, on the premises of such of the workhouses as might be suitably situated, for the inmates and the fishermen, or other poor persons of the locality, to cure fish for the inland workhouses, or on their own account.

In our search for data on this subject, we discovered, however, that similar suggestions had emanated from the Board of Works in Ireland, and appeared in their published correspondence with the Treasury in 1846. But the attention of Government was at that time more particularly directed to encouraging the business of curing by the establishment of works especially for that purpose; and the important question of supplying fresh fish to the numerous inmates of the workhouses appears to have escaped investigation. The large supply of fish that would be required for the workhouse consumption may not have been immediately apparent, and, therefore, the following illustrations of the demand that might be so created may not be wholly devoid of interest.

On the 27th of March, 1847, 159 buildings in Ireland were in occupation as workhouses, originally constructed to contain 93,860 inmates, but accommodating, at the above date, as many as 113,708 paupers. So far as we have been able to ascertain, 83 of these houses, or about one-half, are situated very near to the coast, or communicate with it by some of the chief channels of inland navigation. The number of inmates in the 83 houses, on the 7th of March, 1847, amounted to 72,403. By taking this number as the basis of our calculations, and allowing 2lbs. of raw fish for one meal, to each person, (not too large an estimate, perhaps, as bone and all refuse is included,) we should have a weekly consumption of 289,612 lbs. of fish, if given twice in the week, or 434,418 lbs., if served out on three days in each week; these quantities would respectively represent an annual consumption of 15,054,624 lbs. and 22,589,736 lbs.

It would be difficult, however, to define the limit to the consumption in the way proposed, as it is very probable that nearly all of the 159 workhouses might be supplied with fish, either fresh or cured. With such a range in view, we can scarcely be accused of exaggeration if we assume the practicability of the plan to 100 of the houses, and estimate their inmates at 84,000. Such a number of persons would raise the amount of the demand, if given :

Twice in the Week.		Value at 1d. per lb.	Three times in the Week.		Value at 1d. per lb.
lbs.		£	lbs.		£
In a week to	336,000	1,400	In a week to	504,000	2,100
„ 3 months to	4,368,000	18,200	„ 3 months to	6,552,000	27,300
„ 6 „	8,736,000	36,400	„ 6 „	13,104,000	54,600
„ 12 „	17,472,000	72,800	„ 12 „	26,208,000	109,200
	or 156,000 cwts.			or 234,000 cwts.	

quantities that may be appreciated, when it is shown that the quantity of cod, ling, and hake, cured in Great Britain, was under 100,000 cwt., in 1845.

The introduction into the workhouses of fish as an article of diet, could not be objected to on account of its not being a wholesome or nutritious food, as such an idea is refuted by the well-being of those of the Irish and other people who live chiefly on fish.

Fresh fish might be found to be a very desirable food in conjunction with Indian meal, from the probability of its tendency to counteract the bad effects of that kind of meal when used alone. On the score of economy, fish would certainly prove an advantageous item in the workhouse dietary. The demand so created would not only be beneficial to the fishermen, but it might lead to the inmates of the workhouses acquiring a knowledge of occupations that would be useful to them when again on their own resources, as they might be employed in making up warm clothing, preparing twine, and making nets, of all of which articles the fishermen, generally speaking, are in great want. Such supplies might be given to the fishermen in part payment for their produce, although it would be far from desirable not to pay them chiefly in cash, as that mode of payment, from the love of money being so strongly developed in the Irish character, would be more likely to rouse their energies and stimulate their exertions.

The demand for fish might be increased beyond the consumption of fresh fish, by introducing the system of curing on a more general scale than has hitherto been tried. Where the workhouses are very near to the sea, it would, we think, be both feasible and useful to appropriate a small portion of the premises, supplied with the requisite stores, to the curing of fish. The inmates of the workhouses might cure for the supply of the inland workhouses, and the fishermen, or other poor persons of the locality, might be allowed and taught to cure for themselves, either gratuitously or at the cost price of the stores.

The adoption of such a method might be the means of introducing the art of curing into several of the distressed districts of the country; of making the people better acquainted with cured fish as a useful article of food; and of creating a trade with the interior, that would prove highly beneficial to the fishermen and the people in general.

Such a system of curing might even be preferable to the present Government plan of erecting a few large establishments on distant points of the coast, and of buying fresh fish from the fishermen and curing it in the establishment. It might be a question whether the people would not be more benefited by being obliged to cure for themselves, and in a way that would leave them more at liberty perhaps to enter into a trade in salt-fish with hucksters, or any other

persons who might find it worth while to collect such an article for general traffic.

An experienced curer might visit the different localities, and instruct the people in the most approved methods of curing.

There is now in Ireland, a consumption of cured fish of British taking, which varies in value from 30,000*l.* to 80,000*l.* a year, and, therefore, the establishment of a general system of home curing appears to be warranted by the present demand, as well as called for by the many benefits to which such a plan would most probably give rise.

We would further recommend, as an assistance to poor fishermen, that a similar grant to that now distributed in Scotland of 500*l.* a year, towards the repairing of boats, should be given to Ireland. The sum is small, but, when divided into portions of a few pounds, it would restore to many a poor fisherman the means of continuing his daily labour. The proper application of such a fund could be safely intrusted to the officers of the Coast Guard, by whom the fishermen's boats are now registered.

During the late lamentable period of distress in Ireland, the formation of large companies for prosecuting the fisheries has engaged public attention, but we fear the fate of the Nymph Bank Company, and the failure to establish other similar companies, afford, to such undertakings, but faint hopes of a better result in the present day. In the business of fishing, individual exertion, of a more than ordinary nature, is so absolutely necessary, that associations of the fishermen themselves, or of a few individuals, as now exist at Dunmore, are the only kind of companies that appear likely to offer good to the fisheries, or profit to the members. The former of these kinds of partnership may be so easily promoted by the assistance and advice of local proprietors, that we cannot but look forward to the prosperity of the Irish fisheries being considerably advanced by the well-directed efforts of private individuals of intelligence and influence.

On the Health of Nightmen, Scavengers, and Dustmen. By WILLIAM AUGUSTUS GUY, M.B., *Cantab.*; *Professor of Forensic Medicine, King's College, London; Physician to King's College Hospital; Honorary Secretary to the Statistical Society, &c.*

I WAS induced to enter on the inquiry indicated by the title of this communication in consequence of an application made to me by the owner of a laystall, indicted as a nuisance, that I would examine the effect on the health of the neighbourhood of the laystall in question. The examination of the health of nightmen, scavengers, and dustmen, the results of which I now propose to lay before the Society, grew out of this local inquiry.

As in all scientific investigations, much depends upon the absence of any decided bias in the mind of the observer; it may be well to premise that a careful examination of the evidence laid before the Health of Towns' Commission in reference to the health of nightmen